

LANDFILLS

Making Mountains Out of Landfills: Telling a Visual Story of Waste

Overview

What kind of trash does America generate each year? Where does it go? What impact does our waste have on the environment? How can we reduce our trash output? Enhance your health, science, and environmental studies curriculum with this video which features a landfill in South Jersey and examines the state of food waste in America today. Then, use the accompanying lesson plan to prepare students to visually track and document different kinds of trash in their community.

Materials

- Waste Deep video
- Reproducible: Trash Tracker

Background

Here are some more surprising statistics about food consumption and waste in the United States today:

- Every year, Americans consume 2000 pounds of food and one-quarter of this ends up in a landfill.
- America produces 34 millions tons of food scraps per year.
- Four to 10 percent of all the food that we purchase ends up as kitchen waste. That's \$40,000 to \$100,000 of waste for every \$1 million of food purchased due to overproduction, expiration, spoilage, handling, or post-consumer waste.

Whereas historically, food scraps were separated out for garbage pick up and recycled as pig food whereas nowadays, leftovers end up in our regular trash can. Every year, the United States generates approximately 230 million tons of "trash"-- about 4.6 pounds per person per day. Less than one-quarter of it is recycled; the rest is incinerated or buried in landfills which are getting closer to maxing out on their available space due to various legal restrictions <http://www.manhattan-institute.org/energymyths/myth5.htm>. This video highlights the problems surrounding our nation's reliance on landfills and offers a valuable opportunity to examine one's own trash output.

Featured Vocabulary

- **landfill** – a system of trash and garbage disposal in which the waste is buried between layers of earth to build up low-lying land
- **methane** – colorless odorless flammable gas that consists of carbon and hydrogen and is produced by decay of organic matter
- **compost** - a mixture largely of decayed matter of once living things (as grass) or their products (as coffee grinds) and used for fertilizing and conditioning land
- **solid waste** - any discarded (abandoned or considered waste-like) materials. Includes household waste. Solid wastes can be solid, liquid, semi-solid or containerized gaseous material.
- **recyclables** - fit for or capable of being recycled

Warm Up

“Nobody wonders where, each day, they carry their load of refuse. Outside the city, surely; but each year the city expands, and the street cleaners have to fall farther back. The bulk of the outflow increases and the piles rise higher, become stratified, extend over a wider perimeter.” – Italo Calvino, *Invisible Cities*

Share this quote with students, then introduce them to MIT’s Track Trash <http://senseable.mit.edu/trashtrack/> project which attached hundreds of small, smart location tags to different types of trash so that the items could be followed through Seattle’s waste management system, revealing the final journey of everyday objects in a series of real time visualizations.

Share some of the data visualizations from the Track Trash project with students, and ask them to share impressions. What is surprising, if anything, about these images? Why does it matter where trash ends up?

Discussion Questions

Have students watch the video while taking notes on the following. Afterwards, use the following questions to assess comprehension and prompt discussion:

- Why do you think landfilling is a cheap solution to our garbage output?
- What is the long-term impact of using landfills? Why is there resistance to building more landfills?
- What is meant by the “layered cake” analogy?
- What solutions are being presented to relieve the pressure on landfills?
- What kinds of trash did you notice in the film? Did it seem familiar to you? Does the garbage you see in your school or home seem similar or different?

Activity

Write the following words on the board:

- Plastics
- Electronics
- Food and Liquids
- Paper

Invite students to select a specific type of waste that they will track over a given time period (one day, one week, etc.) through photography or video recordings in a specific place (eg: home, school, local trash can on a specific street corner, etc.). They can use the reproducible “Trash Tracker” to take notes of the locations they were photographing, at which times or what days, and their observations about the waste—for example, what is its weight or volume or going even further, where might it end up (landfills, incinerators, recycling).

Afterwards, students should create brief videos documenting their photographs using animoto.com, then share their observations and findings with the whole group. Ask: What did you discover about this particular type of waste? What problems did you observe? How would you solve them? Did your experience make you see your own waste habits any differently?

Going Further

Share the Garbage: How Can My Community Reduce Waste? Interactive <http://www.learner.org/interactives/garbage/intro.html> with students. Have them explore possible global solutions <http://www.learner.org/interactives/garbage/globalsolut.html> to the garbage crisis, then debate the pros and cons of each approach.

Resources

Tracking Trash to Turn Waste into Efficiency

<http://www.scientificamerican.com/article.cfm?id=turning-waste-into-efficiency>

Article from Scientific American profiling MIT's Trash Track project

I Wanna Take Me a Picture, by Wendy Ewald

<http://www.randomhouse.com/book/206054/i-wanna-take-me-a-picture-by-wendy-ewald-and-alexandra-lightfoot>

Written for parents and teachers, this book is an accessible and practical guide to getting children involved in photography.

Youth Photography Toolkit

<http://www.kids-with-cameras.org/community/culturalagents-toolkit.pdf>

Developed by the Cultural Agents Initiative, this toolkit features resources and a bibliography for integrating photography into your curriculum.

Standards

Agricultural Education

5. Understands strategies used in natural resource management and conservation

Geography

9. Understands the nature, distribution and migration of human populations on Earth's surface

12. Understands the patterns of human settlement and their causes

14. Understands how human actions modify the physical environment

16. Understands the changes that occur in the meaning, use, distribution and importance of resources

Technology

3. Understands the relationships among science, technology, society, and the individual